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RCRA, Superfund & EPCRA Hotline Training Module

Introduction to:

Emergency Planning Requirements
(EPCRA §§301-303; 40 CFR §355.30)

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EMERGENCY PLANNING REQUIREMENTS

CONTENTS

1. INTRODUCTION

To address the risks posed by the presence of chemicals in our communities, Congress established a framework for emergency planning at the state and local levels. The Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA), also known as SARA Title III, requires facilities to provide information on the presence of hazardous chemicals and on the releases, both accidental and routine, of such chemicals. This information is maintained and used by state and local committees consisting of representatives from community organizations, such as hospitals, police and fire departments, and emergency response teams. These committees serve as the liaison between facilities and the community, developing emergency plans and making the collected information publicly available.

The goal of this module is to explain the purpose and scope of EPCRA's emergency planning requirements and the basic elements of the program. We begin with emergency planning requirements because they set up the framework for the EPCRA program. After you have completed this module you will be able to:

- Explain the establishment of state commissions, planning districts, and local committees
- Understand emergency planning notification requirements
- Identify the extremely hazardous substances and their threshold planning quantities
- Explain the development of comprehensive emergency response plans.

Use this list of objectives to check your knowledge of this topic after you complete the training session.

2. REGULATORY SUMMARY

Title III of SARA, also known as the Emergency Planning and Community Right-to-Know Act of 1986, requires emergency planning efforts at state and local levels to increase public awareness and understanding of potential chemical hazards present in communities. SARA Title III requires the creation of state and local emergency planning entities that will help communities prepare for, respond to, and ultimately prevent potential chemical emergencies through the development and use of contingency plans. To this end, the Act also requires facilities to provide the chemical information necessary for effective emergency planning.

Prior to 1986, several voluntary programs for planning and preparedness were in place. The Chemical Manufacturers Association (CMA) instituted its voluntary Community Awareness and Emergency Response (CAER) program to encourage emergency planning, preparedness, and information exchange between its member companies and their surrounding communities. Within EPA, the Administrator initiated a program called the Air Toxic Strategy, a plan that contained provisions for both routine and accidental chemical releases. The portion addressing accidental releases came to be known as the Chemical Emergency Preparedness Program (CEPP). CEPP goals included increasing community awareness of potential chemical accidents and developing emergency response plans. In order to provide a focus for planning efforts, EPA developed the CEPP Interim Guidance (a.k.a., the Blue Book), which included a list of the acutely toxic chemicals. The substances included on the list were found to potentially cause serious, irreversible health effects if accidentally released. Congress later renamed the original list the extremely hazardous substance (EHS) list.

SARA Title III requires by law much of what CEPP encouraged. The law, however, goes further by establishing a structured program consisting of planning entities at the state and local levels and requiring facilities to provide the chemical information necessary for effective planning. This module discusses the basic elements of the emergency planning program established by Title III: state and local planning entities, the targeted regulated community, and information collection and planning tools.

2.1 ESTABLISHMENT OF STATE COMMISSIONS, PLANNING DISTRICTS, AND LOCAL COMMITTEES

EPCRA §301 requires each state to provide a structure for emergency planning. Specifically, the Governor of every state must establish a State Emergency Response Commission (SERC), which is responsible for the coordination of local emergency planning districts and the supervision of Local Emergency Planning Committees (LEPCs). This system forms a cohesive link between the local community and state

and federal agencies. Each member of the emergency planning system plays an important and distinct role which will be discussed in greater detail in this section.

STATE COMMISSIONS

EPCRA §301(a) required the governor of each state to establish a SERC by April 17, 1987. The Governor had the option to designate as the SERC one or more existing emergency response organizations that were state-sponsored or appointed. If the Governor did not designate a SERC, the Governor had to operate as the SERC until such designation was made. The purpose of the SERC is to make information collected under EPCRA publicly available. This involves formulating guidelines for receiving and processing public requests for information on emergency notification and emergency and hazardous chemical inventory forms. These responsibilities necessitate the designation of an information coordinator for each SERC.

The agencies that handle the various aspects of SARA Title III differ from state to state. For example, in Rhode Island, the SERC consists of several state government departments, each handling a different facet of Title III reporting. The Rhode Island Emergency Management Agency handles emergency planning and release reporting, the Department of Labor handles hazardous chemical inventory reporting, and the Department of Environmental Management handles toxic chemical release reporting. In Florida, on the other hand, all aspects of Title III are handled by the Department of Community Affairs.

Although not specifically mentioned in the statute, EPA acknowledges the tribal sovereignty of Native American communities governed by federally recognized Indian tribes. EPA published a rule in the Federal Register (55 FR 30632; July 26, 1990) designating Indian tribes and their chief executive officers as the implementing authority for Title III on all Indian lands. EPA's policy is to work with Native Americans on a government-to-government basis. Unless tribal leaders choose another option to comply with Title III, EPA will regard federally recognized tribal reservations as Tribal Emergency Response Commissions (TERCs) which have the same responsibilities as states for carrying out provisions of the law.

PLANNING DISTRICTS

Shortly after the statutory deadline requiring governors to establish SERCs, EPCRA §301(b) required each SERC to designate emergency planning districts. The approach for devising each district varied from state to state. For instance, New Jersey utilized city and township lines as boundaries for emergency planning districts, whereas other states followed county lines or designated the entire state as one district. Oversight for each of the local emergency planning districts was not the direct responsibility of the SERC, but the responsibility of an LEPC.

LOCAL COMMITTEES

To effectively create and implement the emergency planning provisions of EPCRA at the local level, Congress mandated the creation of LEPCs. SERCs were required to appoint members to the LEPC of each emergency planning district by August 17, 1987. The purpose of the LEPC is to maintain a broad-based membership from the community to ensure the development of an effective emergency plan. At a minimum the LEPC membership must include representatives from the following:

- Elected state and local officials
- Law enforcement agencies
- Civil defense agencies
- Firefighting personnel
- First aid personnel
- Health care personnel
- Local environmental groups
- Hospital staff
- Transportation personnel
- Broadcast and print media
- Community groups
- Owners and operators of facilities subject to emergency planning requirements.

Emergency Plans

The LEPC is responsible for developing and maintaining a local emergency plan that will ensure a quick and effective response to a chemical emergency. These plans provide a range of information to facilitate an effective and efficient course of action if a chemical release were to occur. Issues such as which facilities use chemicals, where the chemicals are stored, and what routes are the quickest for first-responders and evacuation are addressed by the emergency plan. Delegating this responsibility to the LEPC ensures that communities will develop personalized, need-specific, and effective emergency plans. Many LEPCs contact neighboring LEPCs to coordinate procedures and resources to ensure the most effective emergency response. Ultimately, the SERC is responsible for coordinating emergency plans among districts.

Developing the emergency plan is a continuing process. The reporting requirements of Title III are ongoing and provide LEPCs with up-to-date information about chemical hazards. The LEPC must review the plan at least annually, or more frequently as changed circumstances in the community or at any facility may require. Furthermore, EPA suggests that LEPCs test their plans to ensure effectiveness.

Similar to the SERC, the LEPC has obligations to the general public in its district. The LEPC must make information and submitted reports publicly available during

normal business hours. The LEPC must also notify the public of the availability of Title III information, such as the emergency plan, activities, meetings, and provide opportunities for public comment. Getting the community actively involved in the emergency planning process offers several benefits: greater community awareness of the local emergency plan, development of an emergency plan that accurately addresses the community's needs and concerns, and active involvement by the community, which may serve as a catalyst for increased funding by local government entities.

Transportation Plans

Although chemical inventory information is very important for emergency response actions, transportation plans can be equally important. EPA suggests that LEPCs address details such as communication systems, evacuation routes, and resources when developing a plan, although evaluation of these areas is not specifically required. Only the LEPC has access to this type of information and can best evaluate it. Similarly, an LEPC should be aware of heavily traveled highways and routes that are used to transport chemicals, and include them in the emergency plan (52 FR 13385; April 22, 1987). Because of the importance of a transportation plan, a transportation representative must be a member of the LEPC.

Public Notification

The LEPC must annually publish a notice of availability of the emergency response plan and all other information gathered under the reporting sections of SARA Title III. Details on the public availability of Title III information are discussed in the module entitled SARA Subtitle C.

2.2 SUBSTANCES AND FACILITIES COVERED, AND NOTIFICATION

Both EPA and Congress saw the need to provide a starting point for the massive effort required to develop emergency plans for chemical accidents. As a result, EPA developed a list of substances that, when released, could cause serious harm to human health and the environment. Facilities that have these chemicals on site at any one time above certain levels are subject to the emergency planning provisions of EPCRA. This list, published as the acutely toxic chemical list in Appendix A of the CEPP Interim Guidance (November 1985), was the focus for the voluntary preparedness efforts of EPA's Chemical Emergency Preparedness and Prevention Office. This list, however, was not intended to be a complete list of all hazardous chemicals.

THE EXTREMELY HAZARDOUS SUBSTANCE LIST

Congress renamed the acutely toxic chemical list in Appendix A of the CEPP Interim Guidance as the list of extremely hazardous substances (EHSs). The statute further required EPA's Administrator to establish a threshold planning quantity (TPQ) for each EHS. A TPQ is the minimum amount of an EHS present on site at any one time that triggers emergency planning requirements for the facility (EPCRA §302(b)(1)).

The EHS list is to be used by local planners as a starting point for emergency plans, but it is not to be considered a definitive list of hazardous substances that require emergency planning. There are thousands of chemicals, compounds, and mixtures that are not specifically listed but could pose great hazards under given conditions. For instance, propane gas is not an EHS, however, a facility that stores propane gas in large tanks could pose an explosive hazard under certain conditions (e.g., a fire, hurricane, earthquake, or any other event that may cause the tanks to rupture). This type of facility may still be included in a local emergency plan if the governor or SERC decides after public notice and comment that there is a concern in the event of an emergency at or near the facility (EPCRA §302(b)(2)).

Development of the EHS List

The original acutely toxic chemical list identified chemicals that are most likely to induce serious acute affects after short-term airborne exposure. To identify chemicals that cause such a reaction, the Agency relied upon data obtained from animal toxicity testing. These data generally are expressed in one of three ways:

- Median lethal dosage (LD_{50}) applies when the substance is taken by mouth or exposed to the skin

- Median lethal concentration (LC_{50}) applies when the substance is inhaled (LC_{50} and LD_{50} represent dose levels or concentrations of a chemical that result in the death of 50 percent of the exposed test animals)

- LD_{LO} or LC_{LO} (these values represent concentrations at which some animals died, and were used whenever LD_{50} or LC_{50} were not available).

Using these values, the criteria described in Figure 1 were established to identify EHSs.

Figure 1
Values For Acute Toxicity

Route	Acute Toxicity Measure	Value
Dermal	Median lethal dose (LD_{50})	Less than or equal to 50 mg/kg
Oral	Median lethal dose (LD_{50})	Less than or equal to 25 mg/kg
Inhalation	Median lethal concentration (LC_{50})	Less than or equal to 0.5 mg/1

These criteria were then compared to the National Institute of Occupational Safety and Health's (NIOSH's) Registry of Toxic Effects of Chemical Substances (RTECS), the largest database of toxicity data available to identify acutely toxic chemicals. Other chemicals were included on the list based on high production volume and known risk.

Development of TPQs

To fulfill its statutory obligation, EPA established TPQs for each chemical on the list. In developing these levels, the Agency used the Dispersion/Toxicity Ranking Method. Under this approach, chemicals were assigned to TPQ categories based on an index that accounts for each chemical's toxicity and potential to become airborne in an accidental release. This approach provides a basis for a relative measure of concern, rather than absolute values. The data obtained from the index were combined to produce a ranking factor. Chemicals with a low ranking factor indicated high concern and were assigned low TPQs, while chemicals with a high ranking factor indicated lower concern and were assigned higher TPQs.

TPQs for Solids

Solids on the EHS list have two TPQ values. The first threshold is for the chemical in a powdered (particle diameter less than 100 microns), solution (solid EHS dissolved in a liquid), or molten (liquid form of an EHS which is solid at standard temperature and pressure) form. The second value applies to all other forms of the chemical (52 FR 13381; April 22, 1987). For example, cantharidin, a solid at room temperature, has two thresholds: 100/10,000 pounds. The first value would apply if the facility has a cantharidin solution. If the cantharidin was in large pieces, however, the TPQ would be 10,000 pounds.

TPQs for EHSs Present in Mixtures, Solutions, or Molten Form

If an EHS is present in a mixture or solution, the weight of the EHS present is calculated by multiplying the weight percent of EHS present by the weight of the solution or mixture (52 FR 13396; April 22, 1987). For example, if a 200-pound mixture is 25 percent EHS, the amount of EHS present in the mixture can be calculated as follows:

EHS (lbs.) = (weight % EHS) x (weight of solution or mixture)
= (25%) x (200 lb. mixture)
= (0.25)(200 lbs.)
EHS = 50 lbs.

If an EHS is present in molten form, the weight of the EHS present is calculated by multiplying the weight of the solid in molten form by an adjustment factor of 0.3. The adjustment factor accounts for the maximum potential volatility expected for solids in molten form. The resulting figure is then compared to the lower TPQ in question (52 FR 13381; April 22, 1987). For example, the amount of EHS present in 300 lbs. of solid in molten form can be calculated as follows:

EHS (lbs.) = (total weight of solid EHS in molten form) x (adjustment factor)
= (300 lbs.) x (0.3)
EHS = 90 lbs.

DE MINIMIS RULE

The de minimis rule refers to the amount of an EHS present in a mixture below which the concentration is too small to be considered hazardous. For purposes of TPQ determinations, the de minimis value is 1 percent. This means that if any EHS is present in a mixture or solution at concentrations below 1 percent by weight, it does not need to be accounted for in a TPQ determination.

The de minimis rule can be explained by the following example. Mixture A contains 2 percent by weight of acetone cyanohydrin. Mixture B contains 20 percent by weight of acetone cyanohydrin. Mixture C contains 0.5 percent by weight of acetone cyanohydrin. For mixtures A and B, the concentrations by weight are above the 1 percent de minimis value. Therefore, the amount of acetone cyanohydrin present in mixtures A and B must be calculated by multiplying the weight percent of chemical present times the weight of the mixture. The facility owner/operator must then aggregate the amount of acetone cyanohydrin in mixtures A and B to determine if the TPQ was exceeded. Since the concentration of acetone cyanohydrin in mixture C is below the 1 percent de minimis value, no calculation needs to be made for the chemical in this mixture.

FACILITY NOTIFICATION

Even though the LEPC will have a broad-based membership drawn from many parts of the community, the committee will most likely not be able to identify all potential hazards by looking at a map or a list of area businesses. Under EPCRA §302(c), the owner or operator of any facility that has an EHS present at or above the TPQ must notify the SERC and LEPC that the facility is subject to the emergency planning requirements. This notification requirement alerts the SERC and LEPC to the fact that the facility should be considered for state and local emergency planning purposes. If there are any changes involving the presence of EHSs in excess of TPQs at a facility, the facility's owner or operator is required to notify the SERC and LEPC within 60 days.

ADDITIONAL FACILITIES

Although facilities that have EHSs above the TPQs must report to the SERC and LEPC for emergency planning purposes, other facilities may also be involved in plans. Under EPCRA §302(b)(2), the governor or SERC "...may designate additional facilities which shall be subject to the requirements" of emergency planning. The designation must be made after public notice and opportunity for comment. The SERC then must notify the facility of such designation under this requirement. Only the SERC, and not the LEPC, can make such a designation.

STATE AUTHORITY

The requirements of SARA Title III, including TPQs, are the minimum standards that must be enforced. Nothing in the statute preempts or affects any state or local law (EPCRA §321). If a state wishes to make the standards more stringent by lowering the thresholds, it may do so by passing a state law (52 FR 13382; April 22, 1987).

2.3 COMPREHENSIVE EMERGENCY RESPONSE PLANS

Once the LEPC has gathered the appropriate chemical information, it must design and maintain a community-wide emergency plan. In order to ensure maintenance of the plan, Congress mandated that it be reviewed at least annually, or as often as needed to reflect changes in the community or at any facility. Each LEPC must also evaluate what resources are needed to develop, implement, and exercise the emergency plan. If any additional resources are necessary, the LEPC must make recommendations for providing the additional resources. This plan is officially named a comprehensive emergency plan. Even though it is only required to take into account facilities subject to EPCRA §302, EPA recommends that the plan cover all facilities that pose a chemical risk to the community.

Emergency response plans must include:

- Identification of facilities subject to emergency planning and notification requirements that are within the emergency planning district; identification of routes likely to be used for the transportation of EHSs; and identification of additional facilities contributing or subjected to additional risk due to their proximity to facilities subject to the emergency planning and notification requirements, such as hospitals or natural gas facilities

- Methods and procedures to be followed by facility owners and operators and local emergency and medical personnel to respond to any release of EHSs

- Designation of a community emergency coordinator and facility emergency coordinators, who will make determinations necessary to implement the plan

- Procedures providing reliable, effective, and timely notification by the facility emergency coordinators and the community emergency coordinator to persons designated in the emergency plan, and to the public, that a release has occurred (consistent with the emergency release notification requirements of EPCRA §304)

- Methods to determine the occurrence of a release, and the area or population likely to be affected by such release

- A description of emergency equipment and facilities in the community subject to emergency planning and notification requirements, and identification of the persons responsible for such equipment and facilities

- Evacuation plans, including provisions for a precautionary evacuation and alternative traffic routes

- Training programs, including schedules for training local emergency response and medical personnel

- Methods and schedules for exercising the emergency plan.

Although LEPCs are informed of general emergency information, each LEPC cannot possibly be familiar with all aspects of the community and the facilities located in the planning area. To assist local planners, facilities subject to the emergency planning provisions must designate a facility emergency coordinator to assist the LEPC in the emergency planning process. EPCRA §303(d)(3) requires the facility upon request to promptly provide information to the LEPC deemed necessary for developing and implementing the emergency plan. "Information" is not defined in the statute or the regulations and as such can take the form of anything necessary for the LEPC to develop and implement the emergency plan. For example, a facility

plan is not required, but if requested by the LEPC, it must be prepared. The facility must notify the LEPC of any pertinent changes at the facility.

EPA provides some guidance to assist communities in developing emergency plans. One such method is hazards analysis. Hazards analysis is a three-step decision-making process to identify the potential hazards facing a community with respect to accidental releases of EHSs and other hazardous chemicals. The three steps to hazards analysis are hazards identification, vulnerability analysis, and risk analysis. Together, these steps identify potential hazards, locate sensitive populations potentially affected by these hazards, and assess the likelihood that an accident might occur that would endanger members of the community or the environment. Further guidance of hazards analysis can be found in Technical Guidance for Hazards Analysis: Emergency Planning for Extremely Hazardous Substances and the Hazardous Materials Emergency Planning Guide (NRT-1). Once completed, the local emergency plan must be submitted to the SERC. The SERC will review the plan and make suggestions and recommendations for improving the plan.

COMPUTER AIDS

Emergency planning can be a very costly and time-intensive endeavor. One tool that EPA has devised to help LEPCs and SERCs construct and implement these plans is the computer modeling system called Computer Aided Management of Emergency Operations (CAMEO). CAMEO is widely used in the United States by federal agencies, state and local governments, and firefighters for assistance in emergency planning and response. It is also used abroad as part of the United Nations Environment Programme (UNEP) Awareness and Preparedness for Emergencies at the Local Level (APELL) process.

CAMEO was developed by the National Oceanic and Atmospheric Administration (NOAA) and EPA to assist in planning for and responding to chemical accidents, and in managing information collected under SARA Title III. CAMEO is a user-friendly software system that integrates a chemical database of approximately 4,000 chemicals, an air dispersion model (ALOHA), mapping capability (MARPLOT), and data management capability. The latest version of CAMEO is available for DOS-compatible, windows, and Macintosh computers.

CEPPO, in conjunction with the Bureau of the Census and NOAA, recently updated (in 1997) the software tool called LandView III. LandView III incorporates primary EPA databases, including the TRI database, and demographic information to generate maps and statistical information for use by local planners, responders, Brownfields communities, and evironmental justice sites. This program is particularly useful for the public in that it provides a visual display of TRI facilities and other EPA-regulated sites in a particular geographical area.

TRANSPORTATION EXEMPTION

Substances in transport or in storage incident to such transport are exempt from SARA Title III reporting, except EPCRA §304 emergency release notification. Although these chemicals need not be counted toward threshold planning quantities, LEPCs may request information about these chemicals for emergency planning purposes. For example, many substances at facilities such as truck terminals and railroad yards would be exempt because the substances are under active shipping papers. Similarly, substances present in pipelines are exempt from reporting. The transportation exemption applies to the substances, however, not to the facility. Any substances that are not under active shipping papers, or substances not in a pipeline (such as those in a storage tank at the end of a pipeline), must be included for threshold determinations.

3. MODULE SUMMARY

Congress established the emergency planning provisions of SARA Title III to require the development of state and local plans to prepare for, respond to, and prevent potential chemical emergencies, and to increase public awareness of chemical hazards present in communities. These provisions also require facilities with EHSs on site above TPQs to notify the SERC and LEPC that the facility is subject to emergency planning. The emergency planning requirements provide the framework for the collection and public distribution of information regarding chemicals present in communities gathered under all provisions of SARA Title III.